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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/719,766	12/15/2000	Henrik Wagener	P00.1879	4026

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EXAMINER	
GOSHTASBI, JAMSHID	

ART UNIT	PAPER NUMBER
2631	7

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/719,766	WAGENER, HENRIK	
	Examiner	Art Unit	
	Jamshid Goshtasbi-G.	2631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 December 2000*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 December 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date ~~06/25/01~~. 7
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-16 are pending in the application

Claim Objections

2. **Claim 1** is objected to because of the following informalities: It does not end in a period. Furthermore, the word "and" at the end of Claim 1 anticipates additional limitations for this claim that are not listed. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 3-6 and 11-14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The disclosure does not provide enabling discussion with respect to the dependency of the transmission range and interference immunity on frequency swing, BER, and SRRI as needed to make and/or use the first table (**claims 3,4,11, and12**) and the second table (**claims 5,6,13, and14**) for evaluation of the measured BER and SRRI.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 2-6, 12, and 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2 recites the limitation "said frequency swing" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 3 recites the limitation "said optimized transmission behavior" in line 2. There is insufficient antecedent basis for this limitation in the claim. It also recites the limitation "said frequency swing" in line 3. There is insufficient antecedent basis for this limitation in the claim.

In **Claims 4** and **12**, the term "low" is a relative term which renders the claim indefinite. The term "low" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is not clear what value is considered "low" for field intensity and error rate intended in Claims 4 and 12.

Claim 5 recites the limitation "said optimized transmission behavior" in line 2. There is insufficient antecedent basis for this limitation in the claim. It also recites the limitation "said frequency swing" in line 4. There is insufficient antecedent basis for this limitation in the claim.

In **Claims 6** and **14** the term "high" is a relative term which renders the claim indefinite. The term "low" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art

would not be reasonably apprised of the scope of the invention. It is not clear what value is considered "high" for field intensity and error rate intended in Claims 6 and 14.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1 and 7 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by US Patent No. 5683432 to Goedeke et al.

As to **Claim 1**, Goedeke et al. clearly shows a method (system) for wirelessly transmitting data according an FSK method (as part of an adaptive, performance-optimizing communication system with method and means for optimizing the wirelessly transmission of a FM (FSK) signal; see figures 2 and 5 and respective portions of the specification, col.5, L13; col.9, lines 66-67 and col.10, lines 1-21; and col.16, L21 to col.20, L4) which includes all the limitations recited in Claim 1, that includes steps for receiving data, measuring an error rate of the received data, evaluating the measured said error rate and a (measured) field intensity, and producing an evaluation result (by the control circuitry).

Claim 7 inherits the limitations of Claim 1; further, transmission ensuing according to DECT is an intention to use, and Goedeke et al. anticipates that the type of performance monitoring system treated above in the rejection of Claim 1 can be

applicable to any type of communication system implementation (col. 19, lines 56-59), that can therefore include a GFSK based communication system in accordance with DECT standard.

9. Claims 1 and 9 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by US Patent No. 5828695 to Webb.

As to **Claim 1**, Webb clearly shows a method (system) for wirelessly transmitting data according an FSK method (radio signals; DECT standard) which includes all the limitations recited in Claim 1, that includes steps for receiving data, measuring an error rate of the received data, evaluating the measured said error rate and a (measured) field intensity (signal strength), and producing an evaluation result (means for assessing a quality of the received radio signal; claims 1, 5, 7, 9, and 11).

As to **Claim 9**, Webb clearly anticipates means for wirelessly transmitting FSK data (radio signal) that includes a receiver for receiving data, a measuring device for measuring an error rate (BER) of the received data, a measuring device for measuring a field intensity (RSSI) of the received data, and evaluation unit for evaluating the measured error rate and field intensity (means for assessing the quality of the received radio signal; claims 1, 5, and7); further, Webb anticipates a control unit (means for adjusting the transmitting state of the radio transmitter; claim 1) for adjusting a frequency swing (for adjusting the modulation state of the radio transmitter; claim 2) for wirelessly transmitting data by transmitter dependent on measured error rate and field intensity (claims 1, 2, 4, 7 and 11).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. Claims 2-6 and 8-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goedeke et al. (US 5683432) in view of Benowitz et al., Miller (5995539), Feher (5784402), Gehrt et al. (US 5077538), and Ishii (US 5789991).

Claim 2 inherits the limitations of Claim 1; further, Goedeke et al. discloses the possibility of modifying a plurality of operational parameters of the transmitter (col27, lines1-9); but, Goedeke et al. fails to teach the modifying of the frequency swing within a preadjusted range; however, Benowitz et al. discloses that a greater frequency swing for increased power (transmission range) and bandwidth is obtained for the data signals (Abstract); further, that the placement of the supervisory signal frequency in a frequency region (preadjusted range) that is above or below the regions assigned to the data signals has a disadvantage in that the frequency swing between the states (mark and

space) of the data signal must be reduced, decreasing in turn the bandwidth and the signal to noise ratio (col. 1, lines 33-38); and, it would, therefore, be advantageous to obtain a maximum frequency swing (col. 1, lines 42-48) between the mark and space signals (that is, modifying a preadjuated frequency swing); further, Miller defines modulation index and its relationship with frequency deviation (frequency swing, col.33 lines 2-5) and shows that an increase in C/N improves the BER and can be used to reduce the FM modulation index (related to frequency swing), which lowers the bandwidth (col. 33, lines 48 to col.34, Line 7) and reduces the adjacent channel interference (thus, modifying the frequency swing (deviation) when BER is low); and, further, Feher teaches that in Gausian FSK (GFSK) the modulation index is variable (col. 11, lines 42-43); *teaching the possibility of modifying the frequency swing (an operational parameter of the transmitter).* It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Benowitz et al., Miller, and Feher into the method of Goedeke et al. for producing the claimed invention because modifying the frequency swing of the transmitted data could improve the quality of the received data (lowering adjacent channel interface in improved BER, e.g.; this motivation is found in Goedeke et al., Benowitz et al. and Miller.).

Claim 3 inherits the limitations of Claim 1; further, Goedeke et al. discloses (col. 10, lines 5-21) the included control circuitry and operational parameter adjustment circuitry for dynamically adjusting multiple interrelated operational parameters of the communication link, such that system performance goals are met and system

optimization is continuously achieved; further, multiple, prioritized performance goals may be specified for each of a number of different operational circumstances, with operational parameters correspondingly automatically to meet as many of the performance goals, in order of priority, as circumstances allow; and, operational goals and parameter adjustment commands maybe stored in RAM/ROM (lookup tables) and communicated to the control circuitry and associated parameter adjustment circuitry by a processor (col. 17, lines 20-36); further, Benowitz et al. teaching of modifying frequency swing to achieve different transmission range was treated in the rejection of Claim 2 above; It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Benowitz et al. into the method of Goedeke et al. for producing the claimed invention because a (lookup) table (stored in a ROM) of obtainable (transmission) range dependent on frequency swing could be used by the control circuit to adjust the transmission range based on the measured quality of the received data for an optimized transmission.

Claim 4 inherits the limitations of claim 3; further, Miller, as treated in the rejection of Claim 2 above, teaches that an improved BER can be used to reduce the FM modulation index (related to frequency swing), which lowers the bandwidth and reduces the adjacent channel interference; It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Benowitz et al. and Miller into the method of Goedeke et al. for producing the claimed invention because modifying (increasing) the frequency swing (deviation) of the transmitter towards a maximal range when both measured error rate (BER) and

measured field intensity (RSSI) of the received data are low, will improve (optimize) the transmission range while maintaining a reasonable (somewhat increased) error rate.

Claim 5 inherits the limitations of Claim 1; Goedeke et al. further teaches that table operational goals and parameter adjustment (obtainable interference immunity) commands maybe stored in RAM/ROM (lookup tables) as treated in the rejection of Claim 3 above; further, Miller, as treated in the rejection of Claim 2 above, teaches that an improved BER can be used to reduce the FM modulation index (related to frequency swing), which lowers the bandwidth and reduces the adjacent channel interference; It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Miller into the method of Goedeke et al. for producing the claimed invention because a (lookup) table (stored in a ROM) of obtainable interference immunity dependent on frequency swing could be used by the control circuit to optimize the transmission behavior based on the measured quality of the received data.

Claim 6 inherits the limitations of claim 5; It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Benowitz et al. and Miller into the method of Goedeke et al. for producing the claimed invention because modifying (lowering) the frequency swing (deviation) of the transmitter towards a maximal noise immunity when both measured error rate (BER) and measured field intensity (RSSI) of the received data are high, could improve (optimize) the noise immunity (lowering BER) while maintaining a reasonable transmission range (even by lowering RSSI).

Claim 8 inherits the limitations of claim 1; further, limitations of optimizing the frequency swing with respect to a maximal transmission range or a maximal noise immunity were treated in the rejection of claims 3-6 above; It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Benowitz et al. and Miller into the method of Goedeke et al. for producing the claimed invention because selecting an optimal frequency swing lower for a maximal range (thus, increasing RSSI and increasing BER) than the frequency swing for a maximal interference immunity (thus, lowering BER and lowering RSSI) is an obvious design choice since the lower frequency swing could result in an increased (from the existing low) RSSI and a somewhat increased (from the already low), but reasonable BER, therefore, that is the reverse of what happens when frequency swing is increased, therefore, optimizing the transmission for an overall maximal transmission range and still reasonable BER and interference immunity.

As to **Claim 9**, Goedeke et al. discloses a system for adaptive, performance-optimizing communication system with means for wirelessly transmitting FM (FSK) data that includes a receiver for receiving data, a measuring device (error detector) for measuring an error rate (BER) of the received data, a measuring device (signal strength detector) for measuring a field intensity (RSSI) of the received data, and evaluation unit (a control circuitry) for evaluating the measured error rate and field intensity; further, Goedeke et al. discloses a control unit (circuit and associated parameter adjustment circuits) for adjusting various parameters associated with the transmitter for wirelessly transmitting data by transmitter dependent on measured error rate and field intensity in

order to optimize transmission behavior (figures 2 and 5 and respective portions of the specification, col. 16 lines 32-63 and col. 17, lines 2-19). While contemplating the transmitter frequency chosen for transmission of data as an operational parameter that may be adjusted (col. 17, lines 52-65, col. 18, lines 41-44, col. 20, lines 24-29, and col. 26 lines 32-35), Goedeke et al., but, fails to teach adjusting of a frequency swing to optimize transmission behavior; however, Gehrt et al. discloses the relation that exists between the mean value of the signal at the output of the frequency demodulator and the predetermined frequency swing of the frequency modulated signal (col.1, lines 61-68; col.5, lines 43-48; and col.7 lines7-13; further, Ishii discloses that if a frequency changing swing is small in the FSK modulation, it results in a small changing swing of the detected output (col.1, lines 56-63; further, Benowitz et al. discloses the advantage of obtaining a maximum frequency swing as treated in the rejection of Claim 2 above*; all teaching the possibility of adjusting frequency swing (an operational parameter) to improve a transmission behavior.* It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Gehrt et al., Ishii, and Benowitz et al. into the method of Goedeke et al. for producing the claimed invention because adjusting the frequency swing of the transmitted data by the control unit could have improved the quality of the received data, optimizing the transmission behavior.

Claim 10 inherits limitations of Claim 9; further, the claim element that the frequency swing can be modified within a preadjusted (predetermined) range is the subject matter treated above in the rejection of Claim 2.

Claim 11 inherits the limitations of Claim 9; further, Goedeke et al. discloses (col. 10, lines 5-21 and col. 17, lines 20-36) a control unit (as part of the evaluation unit) in communication with a RAM/ROM memory system; as treated above in the rejection of Claim 3, it could have been used to store a first (lookup) table reproducing an obtainable range of a transmission dependent on the adjusted frequency swing for purpose of optimizing transmission behavior.

Claim 12 inherits the limitations of claim 11; further, as treated above in the rejection of Claim 4, the control unit could have been used to optimize the frequency swing toward a maximal range on the basis of the (lookup) table (of Claim 11) when it detects a low field intensity and a low error rate at the same time.

Claim 13 inherits the limitations of Claim 9; further, Goedeke et al. discloses (col. 10, lines 5-21 and col. 17, lines 20-36) a control unit (as part of the evaluation unit) in communication with a RAM/ROM memory system; as treated above in the rejection of Claim 5, it could have been used to store a second (lookup) table reproducing an interference immunity of a transmission dependent on the adjusted frequency swing for purpose of optimizing transmission behavior.

Claim 14 inherits the limitations of claim 3; as treated above in the rejection of Claim 6, the control unit could have been used to optimize the frequency swing toward a maximal interference immunity on the basis of the second (lookup) table (of Claim 13) when it detects a high field intensity and a high error rate at the same time.

Claim 15 inherits the limitations of claim 9; further, as treated above in the rejection of Claim 8, the control unit could have been used (as a design choice) for

selecting an optimal frequency swing that is lower for a maximal range than a frequency swing for a maximal interference immunity.

Claim 16 inherits limitations of Claim 9; further, Goedeke et al. clearly anticipates (col. 19, lines 56-59) that the types of monitoring treated above in the rejection of Claim 9 can be applicable to any type of communication system implementation (DECT standards).

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Xiao discloses the measurement and evaluation of RSSI and BER for the purpose of choosing an antenna; and, Kao et al discloses a method for determining cell boundary in which the BER levels of received signals are analyzed in conjunction with its RSSI levels to deduce the effect of short-term fading or dispersion on signals in a communication system in accordance with DECT protocol.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jamshid Goshtasbi-G., whose telephone number is (703) 305-8976. The examiner can normally be reached on M-F 8:00/4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad H Ghayour can be reached on (703) 305-3034. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jamshid Goshtasbi-G.
Examiner
Art Unit 2631

TEMESGHEN GHEBRETINSAE
PRIMARY EXAMINER
6/22/09